4/ On page 3, at line 1, the word "directly" appeared as "direclty" and is now corrected.

5/ On page 5, at line 21, the word "be" was missing after the word "can" and has now been inserted after the word "can".

6/ On page 6, at line 1, after the word "turboprop" was a full stop "." which should not have been present and which has now been removed. At lines 2, 12, and 17 on page 6 the word "be" was missing after the word "can" on each of these lines and has now been inserted in each of these lines after the word "can". At line 9 on page 6 the word "the" appeared twice in sequence. One of the words "the" has been removed.

7/ On page 8, at line 15, the word "turbofan" appeared as "tuborfan" and is now corrected. At lines 3 and 11 on page 8 the word "be" was missing after the word "can" and has now been inserted in these lines after the word "can".

8/ On page 9, at lines 18 and 23 the word "be" was missing [illegible] the word "can" has now been inserted in these lines after the word "can".

9/ On page 12, at line 23, the word "of" appeared after the word "four" and has now been removed.

10/ On page 16, line 5, the word "pivotally" appeared as "pivotly" and is now corrected.

11/ On page 17 of the original specification, line 12, the word "primary" appeared as "pirmary". The correction now appears on the page numbered 20, line 4, due to the insertion of the commencement of the brief description of the drawings on page 17 in the amended specification. The heading "DETAILED DESCRIPTION OF THE DRAWINGS" has also been inserted on page 20 of the amended specification.

12/ On page 18 of the original specification, line 1, the word "hydraulic" appeared as "hydralic". The correction now appears on the attached page numbered 21.

13/ On page 19 of the original specification, line 19, the word "achieve" appeared as "achive". The correction now appears on the attached page numbered 22.

14/ On page 20, line 13, the word "hydraulic" appeared as "hydarulic". The correction now appears on the attached page numbered 23.

15/ On page 21 of the original specification, line 14, the second reference to the jet engine should have referred to the jet engine as being numbered "40" not "4" and on line 20 the word "the" appeared twice in sequence. A corrected page 21 now appears as page numbered 24 in the amended specification.

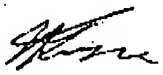
16/ On page 22 of the original specification, line 10, the word "hydraulic" appeared as "hydarulic", and on line 18 the word "viewed" appeared as "veiwed". The corrections now appear on the attached page numbered 25.

17/ On page 24 of the original specification, line 22, the word "pivotally" appeared as "pivotly", on line 23 the word "hydraulically" appeared as "hydraulicly" and on line 25 the word "hydraulically" appeared as "hydraulicly". The corrections now appear on the attached page numbered 27.

18/ Page 25 of the original specification, line 1, the word "additional" appeared as "additonal", on line 2 the word "pivotally" appeared as "pivotly" and on line 22 the word "extension" appeared as "extesnion". The corrections now appear on the attached page numbered 28.

No new matter has been added.

Yours sincerely,



T. Kusic

TANDEM POWERED POWER TILTING AIRCRAFT

This invention relates to the vertical take-off field of aviation.

Many versions of helicopters using tandem rotors have been constructed to date. What has been common to all such helicopters is that the lifting rotors have had to have variable pitch blades to allow control of the helicopters.

This invention provides an aircraft that can fly in a similar manner to a conventional tandem rotor helicopter but does not require a blade pitch varying mechanism.

The aircraft has a main body that is longer than it is wider, a lifting mechanism at the front, which is the primary lifting mechanism, and another lifting mechanism at the rear, which is a secondary lifting mechanism. The primary lifting mechanism is joined to the forward part of the main body of the aircraft by a tilt enabling joint, and the secondary lifting mechanism is joined to the aft part of the main body of the aircraft by another tilt enabling joint.

The tilt enabling joints provide the means to position the lifting mechanisms above the main body of the aircraft and the means to tilt the primary and secondary lifting mechanisms in a plurality of directions and angles in a controlled manner ~~mannner~~ relative to the main body of the aircraft. Referring to the tilt enabling joint that can tilt the primary lifting mechanism as a primary tilt enabling joint, the primary lifting mechanism can be tilted forward, rearward, and from side to side with respect to the main body of the aircraft by means of the primary tilt enabling joint. And referring to the tilt enabling joint that can tilt the secondary lifting mechanism as a secondary tilt enabling joint, the secondary lifting mechanism can be tilted forward, rearward, and from side to side with respect to the main body of the aircraft by means of the secondary tilt enabling joint.

Tilting of the lifting mechanisms is used as a means to control the aircraft instead of varying blade pitches. By using tilting of lifting mechanisms to control the aircraft during flight, combinations of different forms of lifting mechanisms can be used. For example, the front lifting mechanism can be in the form of a rotor with fixed pitch blades and an engine assembly, with the blades able to force air in a downward direction, while the rear lifting mechanism can be a jet engine which can force exhaust gases

~~direclty~~ directly downward or downward and sideways, depending on the tilting of the jet. By being able to tilt the jet forward and rearward, and from side to side, changes in exhaust direction can be achieved. Sideway directed exhaust can be used to counter the torque of the forward rotor during take off. Because the aircraft has a jet at the rear instead of a rotor, the downwash over the rear part of the body of the aircraft from rotor blades is avoided. As such wings can be fitted to the rear of the aircraft. On conventional helicopters wings have been proven to be useless due to downwash from rotor blades. With wings fitted to the current invention, the aircraft could gain substantial lift during high speed forward flight, reducing the need to rely on the jet at the rear for lift. By fitting the forward lifting rotor and engine to the main body of the aircraft with multiple tilt enabling joints, the forward lifting mechanism could be tilted 90 degrees forward during forward flight, thus overcoming the need for a counter torque mechanism during high speed forward flight. The jet can then be tilted into a horizontal position, adding to forward propulsion. The aircraft in effect can be transformed into a high speed forward flying aeroplane, using a massive sized rotor at the front acting as a propeller on an aeroplane and a jet at the rear for forward propulsion. The wings would provide

lift, and ailerons on the wings could counter the torque from the main rotor during high speed forward flight.

With the primary lifting mechanism at the front of the aircraft comprising a rotor with a plurality of blades connected to the rotor, and the rotor being rotated by an engine assembly to force air to travel in a downward direction, the engine assembly can consist of a single engine or a plurality of engines.

Since the rotor blades don't have to be varied as in a conventional helicopter, a simple option could be to use a turboprop as the primary lifting mechanism, positioned on the primary tilt enabling joint such that during take-off air is forced in a downward direction by means of the blades that form part of the turboprop.

While the secondary lifting mechanism can in one form be a jet engine, it can in another form be a rotor with a plurality of blades connected to the rotor, with an engine assembly to rotate the rotor, and by rotation of the rotor force air in a downward direction by means of the blades as the blades travel around the rotor. The engine assembly can be a single engine or a plurality of engines. In another form the secondary lifting mechanism can be a turboprop.

Hence it becomes apparent that different types of lifting mechanisms can be combined on the aircraft.

In one form of the aircraft the primary lifting mechanism comprises an engine assembly, a rotor, and blades connected to the rotor, with the engine assembly able to rotate the rotor and the blades connected to the rotor such that air can be forced to travel in a downward direction by means of the blades rotating around the rotor, while the secondary lifting mechanism also comprises an engine assembly, a rotor, and blades connected to the rotor, with the engine assembly of the secondary lifting mechanism able to rotate the rotor of the secondary lifting mechanism and the blades of the secondary lifting mechanism connected to the rotor of the secondary lifting mechanism such that air can be forced to travel in a downward direction by means of the blades of the secondary lifting mechanism rotating around the rotor of the secondary lifting mechanism.

In another form of the aircraft the primary lifting mechanism is a turboprop which is positioned on the primary tilt enabling joint such that air can be forced in a downward direction by means of the blades of the turboprop, and the secondary lifting mechanism is a

[illegible] rotor, and blades connected to the rotor, with the engine assembly able to rotate the rotor and the blades connected to the rotor such that air can be forced to travel in a downward direction by means of the [the] blades rotating around the rotor, and the secondary lifting mechanism is a turboprop which is positioned on the secondary tilt enabling joint such that air can be forced in a downward direction by means of the blades of the turboprop.

In another form of the aircraft the primary lifting mechanism is a turboprop which is positioned on the primary tilt enabling joint such that air can be forced in a downward direction by means of the blades of the turboprop, while the secondary lifting mechanism comprises an engine assembly, a rotor, and blades connected to the rotor, with the engine assembly of the secondary lifting mechanism able to rotate the rotor of the secondary lifting mechanism and the blades of the secondary lifting mechanism connected to the rotor of the secondary lifting mechanism